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NOTICE OF ALLOWANCE AND FEE(S) DUE

22429 7590 10/06/2009

LOWE HAUPTMAN HAM & BERNER, LLP
1700 DIAGONAL ROAD
SUITE 300
ALEXANDRIA, VA 22314

EXAMINER

AFSHAR, KAMRAN

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 10/06/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,405

01/19/2007

Hyun-Wook Kim

4949-06085828

2752

TITLE OF INVENTION: SYSTEM FOR PACKET DATA SERVICE IN THE MIXED NETWORK OF ASYNCHRONOUS COMMUNICATION NETWORK AND SYNCHRONOUS COMMUNICATION NETWORK AND HAND-OVER METHOD THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/06/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

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If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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22429 7590 10/06/2009

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,405 01/19/2007 Hyun-Wook Kim 4949-06085828 2752

TITLE OF INVENTION: SYSTEM FOR PACKET DATA SERVICE IN THE MIXED NETWORK OF ASYNCHRONOUS COMMUNICATION NETWORK AND SYNCHRONOUS COMMUNICATION NETWORK AND HAND-OVER METHOD THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 01/06/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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AFSHAR, KAMRAN 2617 370-331000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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Date _____

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,405	01/19/2007	Hyun-Wook Kim	4949-06085828	2752
22429	7590	10/06/2009	EXAMINER	
LOWE HAUPTMAN HAM & BERNER, LLP 1700 DIAGONAL ROAD SUITE 300 ALEXANDRIA, VA 22314			AFSHAR, KAMRAN	
			ART UNIT	PAPER NUMBER
			2617	
DATE MAILED: 10/06/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 566 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 566 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/585,405	KIM ET AL.	
	Examiner	Art Unit	
	KAMRAN AFSHAR	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03/31/2009.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>07/07/2006</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|--|

/KAMRAN AFSHAR/
Primary Examiner, Art Unit 2617

DETAILED ACTION

Drawings

1. The drawings were received on 03/31/2009. These drawings are accepted.

Allowable Subject Matter

2. Claims 1-15 are allowed.
3. The following is an examiner's statement of reasons for allowance: 1-15.

With respect to claim 1, Beasley (U.S. Pub No.: 2004/0106408 A1) is the closest prior art to the application invention which discloses a handover method for providing a packet data service to a dual-band dual-mode mobile communication terminal in a mobile communication network in which asynchronous and synchronous mobile communication systems, the asynchronous mobile communication system having a Gateway General packet radio service (GPRS) Support Node (GGSN) being connected to a packet data service node of the synchronous mobile communication system (See e.g. ¶ [0041], ¶ [0047], ¶ [0049], Figs. 2-6).

Park (U.S. 6, 704, 581 B1) teaches Method for performing handoff between asynchronous base station and synchronous base station for a dual mode mobile station (See e.g. Figs. 1-10, Co. 3, Lines 20-40).

Kim (U.S. Patent 7, 421, 203 B2) teaches Method for transmitting packet in wireless access network based on wavelength identification code scheme for a handover method (See e.g. Title and Fig. 8).

However, the prior art of record fails to disclose singly or in combination to render obvious that the handover method comprising: the first step of, as the mobile communication terminal that is connected to the asynchronous mobile communication system and uses the packet data service moves into an area of the synchronous mobile communication system, and a handover event occurs, a node B of the asynchronous mobile communication system notifying a Serving GPRS Support Node (SGSN)/GGSN of the asynchronous mobile communication system that handover is required; the second step of the SGSN/GGSN requesting a mobile switching center of the synchronous mobile communication

Art Unit: 2617

system to perform handover, and the synchronous mobile switching center requesting a base station of the synchronous mobile communication system to perform handover; the third step of the synchronous mobile communication system performing a procedure of setting control signals and traffic for transmission of packet data; the fourth step of the base station notifying the mobile switching center that handover has been completed and assigning a forward channel to the mobile communication terminal; the fifth step of the mobile switching center notifying the SGSN/GGSN that handover has been completed; the sixth step of, as the SGSN/GGSN commands the node B to perform handover, the node B directing the mobile communication terminal to perform handover; the seventh step of performing assignment of a reverse channel between the mobile communication terminal and the synchronous mobile communication system, and the mobile communication terminal interfacing with the synchronous mobile communication system and notifying the base station that handover has been completed; the eighth step of the synchronous mobile communication system performing call setup for the packet data service; the ninth step of the base station notifying the synchronous mobile switching center that handover has been completed, and the mobile switching center notifying the SGSN/GGSN that handover has been completed; and the tenth step of the SGSN/GGSN requesting the node B to release a connection to the mobile communication terminal.

With respect to claim 7, the prior art of record fails to disclose singly or in combination to render obvious that the dual-band dual-mode communication terminal being provided with an asynchronous modem unit and a synchronous modem unit, the asynchronous mobile communication system having a Gateway General packet radio service (GPRS) Support Node (GGSN) being connected to a packet data service node of the synchronous mobile communication system, the handover method comprising: the first step of, as the mobile communication terminal, in a dormant state with respect to the asynchronous mobile communication system, moves into an area of the synchronous mobile communication system, a Serving GPRS Support Node (SGSN)/GGSN of the asynchronous mobile communication system receiving information indicating that handover is required; the second step of the SGSN/GGSN commanding a base station of the synchronous mobile communication system to perform handover, the

Art Unit: 2617

third step of the mobile communication terminal attempting to originate a call to the base station, and executing call processing and channel assignment between the base station and the mobile switching center of the synchronous mobile communication system; the fourth step of performing a negotiation related to call processing and setup between the mobile communication terminal and the base station; the fifth step of the synchronous mobile communication terminal setting up a trunk; the sixth step of initializing a radio link protocol between the mobile communication terminal and the base station; and the seventh step of the base station notifying the mobile switching center that the channel assignment has been completed.

With respect to claim 14, the prior art of record fails to disclose singly or in combination to render obvious that the mobile communication system being capable of performing handover when the mobile communication terminal is using a packet data service, wherein: the GGSN communicates with an IP network through an L1 layer for performing coding and modulation, an L2 layer for processing replies for message transmission, and a layer for tunneling the L2 layer, communicates with the SGSN through the L1 layer, the L2 layer, a User Datagram Protocol (UDP)/Internet Protocol (IP) layer for exchanging messages, and a GPRS Tunneling Protocol (GTP)-U layer for defining a flow of packet data and information, communicates with the packet data service node through the L1 layer, the L2 layer, the UDP/IP layer, a Generic Routing Encapsulation (GRE) layer for encrypting and compressing packets and a High-level Data Link Control (HDLC) framing layer for performing link management, synchronization problem solution, flow control and error control, and provides the packet data service through a Point-to-Point Protocol (PPP) layer, a protocol stack of the SGSN includes an L1bis layer corresponding to the L1 layer of the GGSN, an Asynchronous Transfer Mode (ATM) layer for performing generation, extraction and exchange of packet data to correspond to the L2 layer, a UDP/IP layer and a GTP-U layer, a protocol stack of the node B/radio network controller includes an L1 layer corresponding to the L1bis layer of the SGSN, a Media Access Control (MAC) layer for assigning radio resources for multimedia data processing to correspond to the ATM layer, a Radio Link Control (RLC) layer for establishing a radio link with the mobile communication terminal and combining and dividing packet data to correspond to the UDP/IP

Art Unit: 2617

layer, and a Packet Data Convergence Protocol (PDCP) layer for compressing a packet data header to correspond to the GTP-U layer, and the asynchronous modem unit of the mobile communication terminal performs data communication using a protocol stack that includes an HDLC framing layer for performing link management for link connection and disconnection, synchronization problem solution, flow control and error control to correspond to the MAC/RLC/PDCP layers of the node B/radio network controller, and a PPP layer for receiving data through the PPP layer of the GGSN.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Lupien (U.S. 6, 389,008 B1).

b) Park (U.S. 6, 975, 608 B1).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Eng, George** can be reached @ (571) 272-7495. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Application/Control Number: 10/585,405

Page 6

Art Unit: 2617

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/KAMRAN AFSHAR/

Primary Examiner, Art Unit 2617